GrantApp AI

JAMB Practice Test Results — 2026-02-20

23.8%

25 / 105 Correct

Mathematics

Time taken: 41:57

NEEDS WORK

QUESTION BREAKDOWN

#	QUESTION	YOURS	ANSWER
1	If 0.000456 is written in standard form as 4.56 × 10…	A	A ✓
2	Simplify: $(\sqrt{2} + \sqrt{3})(\sqrt{2} - \sqrt{3})$	–	A ✗
	Explanation: Difference of squares: $(a+b)(a-b) = a^2 - b^2$. Result = 2 – 3 = –1. **Note:** Students expect positive result when both surds are positive.		
3	If $\log_{10} 2 = 0.3010$, find $\log_{10} 0.02$	B	D ✗
	Explanation: $\log(0.02) = \log(2 \times 10^{-2}) = 0.3010 - 2 = -1.699$. **Note:** Logarithms of numbers < 1 are NEGATIVE, not undefined.		
4	What is the remainder when $2x^3 + 3x^2 - 5x + 7$ is div…	–	B ✗
	Explanation: Remainder theorem: f(–2) = –16 + 12 + 10 + 7 = 21. **Note:** Use x = –2, not +2, because divisor is (x + 2).		
5	Solve: $\|2x - 3\| = 5$	–	D ✗
	Explanation: $\|a\| = b$ gives $a = \pm b$. So 2x – 3 = 5 OR 2x – 3 = –5, giving x = 4 or x = –1. **Note:** TWO solutions exist, not one.		
6	If sin θ = 3/5 and θ is acute, find cos θ	C	C ✓
7	Find the nth term of: 3, 7, 11, 15 ...	–	D ✗
	Explanation: AP: $T_n = a + (n-1)d = 3 + 4(n-1) = 4n - 1$. **Note:** Verify: when n = 1, 4(1) – 1 = 3 ✓		
8	Evaluate: $\sqrt[3]{(-27)}$	A	A ✓
9	If $3^x = 27^{x-2}$, find x	B	B ✓
10	A binary operation * is defined by $a * b = a^2 - b^2$. …	–	D ✗

	Explanation: 3 * 2 = $3^2 - 2^2 = 9 - 4 = 5$. **Note:** * here does not mean multiplication.		
11	Find the inverse of f(x) = (2x + 1)/(x – 3)	B	C ✗
	Explanation: Swap x and y, solve for y: $f^{-1}(x) = (3x + 1)/(x - 2)$. **Note:** Domain excludes x = 2 (division by zero).		
12	How many diagonals does a regular hexagon have?	B	D ✗
	Explanation: Formula: n(n–3)/2. For n=6: 6(3)/2 = 9. **Note:** Total line segments = n(n–1)/2 = 15; diagonals exclude the 6 sides.		
13	If P = {1,2,3} and Q = {2,3,4}, find n(P ∪ Q)	B	D ✗
	Explanation: P ∪ Q = {1,2,3,4}, n = 4. Using formula: 3 + 3 – 2 = 4. **Note:** Don't count repeated elements.		
14	Differentiate $y = x^3 - 3x^2 + 2$ with respect to x	A	A ✓
15	Convert 234_5 to base 10	—	A ✗
	Explanation: 2(25) + 3(5) + 4(1) = 50 + 15 + 4 = 69. **Note:** In base 5, digits must be 0–4; a digit ≥5 is invalid.		
16	Find the median of: 2, 8, 6, 4, 10	D	D ✓
17	Simplify: $(x^2 - 9)/(x^2 + 6x + 9)$	—	A ✗
	Explanation: Factor: $(x-3)(x+3)/(x+3)^2 = (x-3)/(x+3)$. **Note:** $x \neq -3$ (domain restriction).		
18	A rectangle has length (x + 3) and width (x – 2). Fi…	C	C ✓
19	In a class of 40, 24 like Math, 16 like English, 8 l…	A	A ✓
20	Find the sum of the first 10 terms of: 2 + 4 + 6 + 8…	—	A ✗
	Explanation: $S_n = n/2(2a + (n-1)d) = 5(4+18) = 110$.		
21	If the mean of 4, 7, x, 10, 9 is 8, find x	A	B ✗
	Explanation: Sum = 5 × 8 = 40. 4+7+x+10+9 = 30+x = 40, so x = 10.		
22	Factorize: $6x^2 + 7x - 3$	C	D ✗
	Explanation: Product = –18, sum = 7. $6x^2 + 9x - 2x - 3 = (3x-1)(2x+3)$.		
23	Evaluate: $\int(3x^2 + 2x)dx$	B	C ✗
	Explanation: $\int x^n\,dx = x^{n+1}/(n+1)$. $\int 3x^2 = x^3$; $\int 2x = x^2$. Total: $x^3 + x^2 + C$.		

Note: Always add constant C for indefinite integrals.

24	A circle has equation $x^2 + y^2 = 25$. What is the radius?	—	A ✗

Explanation: Standard form $x^2 + y^2 = r^2$. $r^2 = 25$, so $r = 5$.
Note: $r = \sqrt{25} = 5$, not 25.

25	If $4x - 3 \leq 13$, find the range of x	—	A ✗

Explanation: $4x \leq 16$, $x \leq 4$.
Note: Inequality sign only flips when dividing/multiplying by a negative number.

26	Find the equation of a line with gradient 2 passing …	—	B ✗

Explanation: $y - y_1 = m(x - x_1)$: $y - 3 = 2(x - 1)$, $y = 2x + 1$.
Note: Substitute the given point, not the origin.

27	How many ways can 5 students be arranged in a row?	D	D ✓
28	A bag contains 3 red and 2 blue balls. A ball is dra…	C	C ✓
29	The angles of a triangle are in ratio 1:2:3. Find th…	C	A ✗

Explanation: Sum = 180°. Parts: 1+2+3 = 6. Largest = (3/6) × 180 = 90°.
Note: Sum of triangle angles is always 180°, not 360°.

30	Calculate the volume of a cylinder with radius 7cm a…	—	A ✗

Explanation: $V = \pi r^2 h = (22/7) \times 49 \times 10 = 22 \times 70 = 1540\ cm^3$.
Note: Use r^2, not r; a common error is computing πrh instead.

31	If y varies directly as x and y = 12 when x = 4, fin…	B	B ✓
32	Express $0.\bar{1}$ (0.111...) as a fraction	D	D ✓
33	Find the value of x in the equation 2^(x+1) = 32	A	A ✓
34	The gradient of a line perpendicular to y = 3x + 5 is	B	C ✗

Explanation: Perpendicular gradient = $-1/m = -1/3$.
Note: Product of perpendicular gradients = −1. Not the negative, but the negative reciprocal.

35	Simplify: 2log 5 + log 4 − log 2	—	C ✗

Explanation: 2log5 = log25. log25 + log4 − log2 = log(25 × 4 / 2) = log(50).
Note: log addition = multiplication; log subtraction = division of arguments.

36	Choose the word that is OPPOSITE in meaning to "ubiq…	A	A ✓
37	Choose the option with the same vowel sound as the u…	D	D ✓

38	In the sentence "The committee has submitted its rep…	B	A ✗
	Explanation: Collective nouns take singular verbs when acting as a unit. **Note:** British English often uses plural verbs for collectives.		
39	Identify the literary device: "The classroom was a zoo"	—	A ✗
	Explanation: Direct comparison without like/as = metaphor.		
40	Which sentence uses "lie" correctly?	—	C ✗
	Explanation: Lie (recline) is intransitive: lie/lay/lain. Lay (put down) is transitive: lay/laid/laid.		
41	Choose the correctly punctuated sentence:	B	D ✗
	Explanation: Comma before quote, capital letter starts quote, period inside closing quote.		
42	Identify the error: "Neither the students nor the te…	D	C ✗
	Explanation: With neither...nor, verb agrees with NEAREST subject. Teacher (singular) requires was.		
43	The prefix "bi-" in "biannual" means:	C	B ✗
	Explanation: Biannual = twice yearly. **Note:** Biennial = every two years. These are commonly confused.		
44	Choose the word with correct spelling:	D	B ✗
	Explanation: Double the final consonant before -ed when: stressed final syllable ends in CVC.		
45	In "The faster you run, the sooner you'll arrive," t…	—	D ✗
	Explanation: The + comparative...the + comparative shows correlation.		
46	Identify the sentence with correct pronoun usage:	A	D ✗
	Explanation: After prepositions, use objective case (me/him/her).		
47	The word "sanction" can mean:	C	A ✗
	Explanation: Sanction is an auto-antonym—means both approve AND punish.		
48	Which uses the subjunctive mood correctly?	B	B ✓
49	Identify the dangling modifier:	B	D ✗
	Explanation: Walking home illogically modifies rain (rain can't walk).		
50	The word "egregious" originally meant "remarkably go…	—	D ✗

	Explanation: Pejoration = word becomes more negative over time.		
51	In "She is taller than I," the implied ending is:	D	A ✗
	Explanation: After than in formal writing, use subject case when verb is implied.		
52	Choose the sentence with correct parallel structure:	A	A ✓
53	The phrase "I could care less" is:	A	C ✗
	Explanation: Logically, couldn't care less means zero care possible.		
54	Identify the oxymoron:	—	D ✗
	Explanation: Oxymoron combines contradictory terms. Silence can't be loud.		
55	In passive voice, the sentence "The cat chased the m…	—	A ✗
	Explanation: Passive: object becomes subject, verb becomes be + past participle.		
56	The word "literally" is increasingly used to mean:	B	A ✗
	Explanation: Literally now often intensifies figurative statements.		
57	Choose the sentence with correct comma usage:	B	B ✓
58	The error in "Irregardless of the cost, we'll procee…	C	D ✗
	Explanation: Irregardless is double negative (ir- + -less). Standard form: regardless.		
59	In "The data is conclusive," the subject-verb agreem…	—	C ✗
	Explanation: Data is Latin plural of datum. Modern usage treats it as singular mass noun.		
60	Identify the malapropism: "Texas has a large Portugu…	—	C ✗
	Explanation: Malapropism substitutes similar-sounding wrong word.		
61	The sentence "Whom did you see?" is:	C	C ✓
62	Choose the correct verb form: "If I _____ known, I w…	C	C ✓
63	The phrase "beg the question" traditionally means:	D	D ✓
64	In "She is one of those teachers who inspire student…	A	B ✗
	Explanation: Who refers to teachers (plural antecedent), so inspire (plural verb).		
65	Identify the split infinitive:	—	D ✗
	Explanation: Adverb between to and verb = split infinitive.		

66	The word "presently" means:	C	B ✗
	Explanation: Presently means soon (traditional) OR now (American usage).		
67	Choose the correct form: "Neither of the answers ___…	D	B ✗
	Explanation: Neither is singular pronoun, takes singular verb.		
68	In "The house was engulfed in flames," the phrase "i…	—	D ✗
	Explanation: In flames describes how/in what state house was engulfed (modifies verb).		
69	The sentence "We was ready to leave" contains:	A	C ✗
	Explanation: We was appears in some English dialects.		
70	Identify the zeugma: "She broke his car and his heart"	—	A ✗
	Explanation: Zeugma uses one word in two senses simultaneously.		
71	An element X has atomic number 17 and mass number 35…	B	B ✓
72	Which electronic configuration violates Hund's rule?	—	B ✗
	Explanation: Hund's rule: electrons singly occupy orbitals before pairing. Option C pairs prematurely. **Note:** Maximum multiplicity (unpaired electrons) gives lowest energy.		
73	The ion with electronic configuration 1s2 2s2 2p6 co…	B	A ✗
	Explanation: Both have 10 electrons (isoelectronic with Ne). Na loses 1e-, F gains 1e-. **Note:** Isoelectronic species have same electron count but different nuclear charges.		
74	Electronegativity increases across a period because:	A	C ✗
	Explanation: More protons pull electrons stronger; smaller size means closer to nucleus. **Note:** Noble gases often excluded from electronegativity trends.		
75	Which statement about first ionization energies is c…	—	C ✗
	Explanation: IE generally increases across period. Mg > Na. **Note:** Actual exceptions: Al < Mg (subshell), O < N (pairing energy).		
76	Noble gases are unreactive because:	D	D ✓
77	The bond angle in water (104.5°) is less than methan…	—	A ✗
	Explanation: VSEPR: lone pair-lone pair > lone pair-bond > bond-bond repulsion. **Note:** NH3 (107°) also compressed from tetrahedral but less than H2O.		
78	Which molecule is nonpolar despite having polar bonds?	C	A ✗

Explanation: CO_2: two C=O bonds cancel (linear geometry).
Note: CCl_4 also nonpolar (tetrahedral symmetry) despite polar C-Cl bonds.

79	The hybridization of carbon in CO_2 is:	—	D ✗

Explanation: Linear geometry = sp hybridization (2 regions of electron density).
Note: Same carbon can have different hybridizations: CH_4 (sp3), C_2H_4 (sp2), C_2H_2 (sp).

80	Resonance structures of benzene show:	A	C ✗

Explanation: Resonance = single structure with delocalized electrons, NOT equilibrium between forms.

81	Hydrogen bonding is strongest between:	—	B ✗

Explanation: Strength: F-H > O-H > N-H (electronegativity trend).
Note: O-H bonds in water are more biologically important despite F-H being stronger.

82	The pH of 0.01 M HCl is:	B	A ✗

Explanation: pH = -log[H+] = -log(10-2) = 2.
Note: Very concentrated acids (>1M) can have negative pH.

83	A buffer solution resists pH change because:	C	C ✓
84	The pH at equivalence point in strong acid-strong ba…	C	D ✗

Explanation: Neutral salt formed (NaCl from HCl + NaOH).
Note: Weak acid-strong base gives pH >7; strong acid-weak base gives pH <7 at equivalence.

85	At higher temperature, Kw (= [H+][OH-] = 10-14 at 25…	—	C ✗

Explanation: Water ionization is endothermic; Le Chatelier predicts increase with temperature.
Note: Neutral pH at 60°C is ~6.5 (not 7) because Kw increases.

86	The oxidation number of Cr in $K_2Cr_2O_7$ is:	—	B ✗

Explanation: 2(+1) + 2x + 7(-2) = 0, so x = +6.
Note: Maximum oxidation state usually equals group number; Cr in Group 6 can reach +6.

87	In the reaction $2Fe^{2+} \rightarrow 2Fe^{3+} + 2e^-$, iron is:	C	A ✗

Explanation: Oxidation = loss of electrons (OIL RIG). Fe^{2+} is reducing agent.

88	The standard hydrogen electrode is assigned:	—	B ✗

Explanation: SHE is reference; all other potentials measured relative to it.

89	In galvanic cell, the anode is:	—	B ✗

Explanation: Anode = oxidation = negative in galvanic cell.
Note: In electrolytic cell, anode is POSITIVE (but still oxidation site).

90	Faraday's law: mass deposited is proportional to:	—	A ✗

Explanation: m is proportional to Q. Specifically: m = (Q × M)/(n × F).
Note: Time matters through Q = It; doubling current OR doubling time doubles mass.

91	Haber process produces ammonia at:	—	C ✗

Explanation: N2 + 3H2 = 2NH3 (exothermic). Le Chatelier: high P favors products.
Note: Equilibrium position vs rate conflict requires optimization at ~450°C.

92	In N2 + 3H2 = 2NH3, adding more N2:	—	A ✗

Explanation: Le Chatelier: system counteracts change by consuming added N2.
Note: Kp unchanged; only position shifts, not equilibrium constant.

93	The equilibrium constant Kc for 2A = B is 4. For B =…	D	B ✗

Explanation: Reversing reaction inverts K: K_reverse = 1/K_forward.
Note: Multiplying equation by n raises K to power n.

94	A reaction is spontaneous if:	—	A ✗

Explanation: Gibbs: ΔG = ΔH - TΔS. Spontaneous when ΔG < 0.
Note: Endothermic reactions CAN be spontaneous if ΔS is large and positive.

95	Diamond is harder than graphite because:	—	D ✗

Explanation: Diamond: sp3, tetrahedral. Graphite: sp2, layered with weak van der Waals between layers.
Note: Graphite conducts electricity (delocalized electrons in layers); diamond doesn't.

96	The melting point of NaCl (ionic) is higher than I2 …	—	C ✗

Explanation: Ionic > covalent network > metallic > polar molecular > nonpolar molecular (general trend).

97	Transition metals show variable oxidation states bec…	—	D ✗

Explanation: d electrons have similar energy to s electrons; can lose different numbers.
Note: Scandium and zinc show mainly +3 and +2 respectively.

98	Which is a Lewis acid?	—	D ✗

Explanation: Lewis acid = electron pair acceptor. BF3 has empty orbital.
Note: Broader than Bronsted (proton transfer); includes species without H+.

99	The pH of 10-8 M HCl is approximately:	D	C ✗

Explanation: At very low acid concentration, water's H+ (10-7 M) becomes significant.
Note: Can't ignore water ionization when acid concentration < 10-6 M.

100	Effusion rate of gas A is twice that of gas B. If M_…	—	D ✗

Explanation: Graham's law: rate is proportional to 1/sqrt(M). 2 = sqrt(M_B/4), so M_B = 16.

101	Real gases deviate from ideal behavior at:	—	C ✗

Explanation: High P: volume of molecules matters. Low T: intermolecular forces matter.

102	The van der Waals equation corrects ideal gas law for:	—	B ✗

Explanation: (P + a/V2)(V - b) = RT. a corrects pressure, b corrects volume.

103	Charcoal adsorbs gases because:	C	C ✓
104	A catalyst increases reaction rate by:	A	C ✗

Explanation: Catalyst provides alternative pathway with lower Ea.
Note: Catalyst doesn't change ΔH, ΔG, or equilibrium position.

105	Rate = k[A]2[B]. If [A] doubles and [B] triples, rate:	—	D ✗

Explanation: Rate_new = k(2[A])2(3[B]) = 4 × 3 × k[A]2[B] = 12 × Rate_old.